

THE REPORT OF
 JOHN HUDSON, ENGINEER,
 ON THE PROBABLE EFFECT, THE PROPOSED CUT, FROM
Eau - Brink, to Lynn,
 WILL HAVE ON THE BANKS AND DRAINAGE OF
 Bedford South Level.

GENTLEMEN,

AGREEABLE to a Resolution made by you at a Meeting of your Committee held at the *Rose Inn, Cambridge*, the First day of August last; desiring me to survey the River Ouze, and other Drains passing through Bedford South Level; and Report my impartial Opinion (as a Professional Man, and employed by all Parties,) on the probable Effect, the proposed Cut from Eau-Brink, to Lynn, in the County of Norfolk, will have on the Banks and Drainage of the said Level.

On the Tenth of that Month, I met a Gentleman by accident at Denver Sluice, who first communicated to me the said Resolution.

As I was then in the Country, I thought it most adviseable to spend what time I could possibly spare, in making Observations on the Rivers Ouze and Cam, the New Ouze, or Hundred Feet River, and the Outfall of the Wisley, Brandon River, Mildenhall River, Reach Load, Swaffham Load, and Botsham Load, all of them having their Outfall into the Cam and River Ouze, by Denver Sluice, and of the Old Ouze, from its Junction with the River Cam, to the Hundred Feet River, near Earith.

As I had that Forenoon and the Evening before taken a view of the Harbour of Lynn, and the Ground where the New Cut, from Eau Brink to near the Town of Lynn is intended to be made, and of the River Ouze to Denver Sluice, at the Request of the Right Honourable the Earl of Hardwicke;

I therefore in the course of that Week and the Monday following, took a view of the several other Rivers herein before mentioned, and Report my opinion thereon; as follows.

Of the NEW CUT.

IT is a well known fact and proved by the writers upon Hydrostatics that shortening the length of all crooked Rivers, the velocity of the water is increased in proportion to the square of the length of the straight and crooked River; and according to Mr. Watt's plan, I find that the present Channel between the ends of the proposed New-Cut (from Eau-Brink to Lynn) is five Miles and five furlongs, and the length of the proposed New Cut from B. to C. in his plan, being only two Miles and six Furlongs, the velocity of the current will be increased a little more than four times, when the Water is first let into it; and at all other times when Floods raise the Water to the same height at its entrance, and the Head of Water above will keep continually lowering in the River, and I think it will double the present Velocity of the River Ouze, from thence to its Junction with the Cam, and have the like effect upon all the Drains and Rivers which empty themselves into the Cam, and Ouze, between Denver Sluice and Reach Load.

I cannot

I cannot conceive that the Tide coming through the New-Cut, can ever rise considerably higher than it does at present against the Banks of the Hundred Feet River and Denver Sluice. I think Mr Golborne's observations upon the flowing of the Tides (Vide his Report page 27 28 and 29) has sufficiently established that fact, and as the Velocity of the Water flowing down the New-Cut, will be so considerably encreased, I have no doubt of its having a good Effect in deepening the Harbour of Lynn, and scouring out the Channel below it to the Sea; and if a little Art was used to straighten that Channel, its scouring Effects might be very much assisted; it will also increase the Velocity of the Water in the River Ouze, from the upper end of the said Cut to Denver Sluice, and from thence to the Top of the Hundred Feet River, and of course if it is found necessary to use the Spade Machine, it will wear away the Sand and Mud loosened thereby, more effectually than it can be in the present state of the River.

When I was in the Country, and indeed through the greatest part of this Summer, the Water in the Rivers Ouse and Cam was and has been too high to make any effectual Soundings; I therefore examined the Soundings made by Mr. Milne, and Mr. Golborne, which I have no doubt are very correct, and find but one Shallow place between Denver Sluice and Ely Bridge, which is opposite to the lower end of Sandall's Cut, there are many Shallows between Ely Bridge and Clayhithe, which ought to be deepened, for the improvement both of the Drainage and Navigation.

The Waters in the Ouze and Cam having their surfaces so lowered, will give much better Outfalls to the Wissey, Sams's Cut, Brandon River, Mildenhall River, and Reach Load; and by making the New Cut within the East Bank of the River Cam, from a little below Reach Load, for Navigation, up to Botolph Load, (as recommended in my Report on the Improvement of the Cambridge Navigation) the same Effects will be felt in all the low Lands above Reach Load, and the Old River Ouze from its Junction with the Cam, upwards to the Hermitage Sluice or Lock, and into the upper end of the Hundred Feet River, which has been entirely neglected, and now almost blocked up with Weeds and decayed Vegetables, should be restored to a proper Width and Depth, which will greatly assist the draining the Water, which the several Mills in Haddenham, Wilberton, and Strat-ham Lordships, throw into it; and considerably lower the head against those Mills, and have the like good Effect on the Low Lands, in the Lordships of Wevelington, Willingham, Rampton, Cottenham, &c. on the South Side of the said old neglected River.

The above is my real Sentiments as a Professional Man, employed by all Parties, and hope the Proprietors of Lands in the South Level will be convinced of the necessity of making the said New Cut, as I think it is clearly proved by the Reports and Essays I have read on the Subject, as well as my own Observations, that the Outfall of the River Ouze has been continually growing shallower, and worse for many years past.

I am

GENTLEMEN,

Your most Obedient, and very humble Servant,

JOHN HUDSON.

KENWICK THORPE, Near LOUTH.
Nov. 3d, 1792.



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